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Motorola Inc
Personal Communications Sector
Intellectual Property Department (PJB)
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EXAMINER

LE, THANG Q

ART UNIT PAPER NUMBER

2683

DATE MAILED: 09/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/602,727

Applicant(s)

KOTZIN, MICHAEL D.

Examiner

Thang Q Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☒ Claim(s) 2 and 33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Claim Objections

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered 2 in line 19 should be renumbered 3.

2. Claim 33 is objected to because of the following informalities: claim 33 says "the method of claim 33 further comprising...". The claim 33 can not depend on claim 33. Appropriate correction is required. For purpose of examination, the examiner assumes that claim 33 depends on claim 31.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 10, 12-13, 21-23, 28-31 and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by Heiskari et al (US 5901342)

3. As to claim 1, 4 Heiskari teaches a method for receiving a radio communication in a radio communication system, the method comprising

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among a plurality of mobile stations, selectively assigning one mobile station (RS; fig.2) of the plurality of mobile stations as a first mobile station for receiving radio communications (col.2 ; lines 34-48);

receiving the radio communication at the first mobile station (RS) of the plurality of mobile stations; and (col.2 ; lines34-48)

transmitting a local radio communication from the first mobile station (RS) to an intended recipient mobile station of the plurality of mobile stations (col.3; lines 1-10).

4. As to claim 10, Heiskari teaches steps of transmitting from one mobile station of the plurality of mobile stations to a remote radio of the radio communication system identification information for each mobile station of the plurality of mobile stations (See col.3; lines 20-27).

5. As to claims 12, Heiskari teaches the steps of receiving the radio communication in accordance with a first radio communication protocol; and transmitting the local radio communication in accordance with a second radio communication protocol. The first mobile station is receiving the radio communication from the base station by trunking mode operation (TMO) and the first mobile station is transmitting the local radio communication to other mobile stations by direct mode operation (DMO). (See fig.2 and col. 2; lines 34-48).

6. As to claim 13, Heiskari teaches transmitting the local radio communication at a relatively low transmit power for local reception by the plurality of mobile stations. (See col.1; line 58- col.2; line 6)

7. As to claim 21, Heiskari teaches a method for operating a mobile radio communication station, the method comprising:

receiving a downlink radio transmission (fig.1 and col.3; lines 1-10);

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determining an intended recipient of the downlink radio transmission (col.3; lines 1-10); and when the intended recipient corresponds to an associated mobile station, transmitting information about the downlink radio transmission to the associated mobile station on a low power local radio link (col.3; lines 1-10 and col. 1; line 51- col. 2; line 7).

8. As to claims 22 and 23, Heiskari teaches the step of using the low power radio link, coordinating reception of subsequent downlink radio transmissions among a plurality of mobile radio communication stations including at least the associated mobile station (fig.2 and col.2; lines 34-48). The base station send its down link transmission which includes one or many target addresses at frequency f_2 formed by a frequency and a time slot.

9. As to claims 28, Heiskari teaches a radio communication method comprising:
defining a local group of mobile stations in radio communication with one
or more remote radios of a radio communication system (col.1; line 31-col.2; line 6);
within the local group, assigning a first mobile station (RS) for receiving
downlink transmissions from the one or more remote radios (col.2; lines 34-48);
subsequently, receiving the downlink transmissions (col.2; lines 34-48);
identifying in the downlink transmissions data intended for one or members
of the local group (col.3; lines 1-10); and
communicating the data from the first mobile station to the one or more
members over a local radio communication system (col.3; lines 1-10 or col.2;
lines 34-48).

10. As to claim 29, Heiskari teaches a method comprising:
wirelessly communicating among a local group of electronic devices (col.2; lines 34-48);

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receiving at an assigned electronic device a radio transmission (col.2; lines 34- 48);

at the assigned electronic device, determining one or more intended

recipients of the radio transmission (col.3; lines 1-10);

when the one or more intended recipients corresponds to a member of the

local group other than the assigned electronic device, wirelessly

communicating to the member information about the radio

transmission (col.3; lines 1-10).

11. As to claims 30, 31 and 38, Heiskari teaches a radio communication method comprising:

defining a local group of mobile stations in radio communication with one

or more remote radios of a radio communication system (col.1; line 31-col.2; line 6);

within the local group, assigning a first mobile station (RS) for receiving

downlink transmissions from the one or more remote radios (col.2; lines 34-48);

subsequently, receiving the downlink transmissions (col.2; lines 34-48);

identifying in the downlink transmissions data intended for one or members

of the local group (col.3; lines 1-10); and

communicating the data from the first mobile station to the one or more

members over a local radio communication system (col.3; lines 1-10 or col.2;

lines 34-48).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 7, 24-25, 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heiskari et al (US 5901342 in view of Borrás (US 5133080)

12. As to claims 2 and 32, Heiskari disclose the step of assigning the mobile station as the first mobile station for receiving radio communications, but fails to show the step of identifying a mobile station having particular battery characteristics among the plurality of mobile stations in selectively assigning.

However, Borrás teaches a method assigning mobile station (30; fig.1) to receive radio communications and then transmit radio communications to intended recipient mobile station (26; fig.2) by identifying transmission power of mobile stations (col. 2; line 66- col.3; line 19). Although Borrás does not disclose this method is based on battery characteristics, the examiner take official notice to consider transmission power characteristics corresponding to battery characteristics as well known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Borrás into the method of Heiskari in order to extend the distance the base station can transmit so as to facilitate communication.

13. As to claim 7, Heiskari and Borrás inherently teach among the plurality of mobile stations, identifying a mobile station having best radio reception characteristics; and assigning the identified mobile station as the first mobile station. The mobile station whose better transmission power or better quality is chose to relay communication between base station and other mobile stations.

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14. As to claims 24, 25 and 33, Heiskari fails to disclose the step of dedicating one mobile radio communication station of the plurality of mobile radio communication stations to reception of subsequent downlink radio transmissions based on a reception parameter. However, Borrás teaches a method in which when a base station does have enough power to transmit to a mobile station or signal strength received at mobile station is weak because it is out of transmission range, another mobile station that receives better signal strength is provided to relay communication between the mobile and base station (col. 2; line 66- col.3; line 19). In addition, Heiskari teaches a method to assign a repeater to serve communication group operating in direct mode and out of transmission range of base station (col. 1; line 16- col.2; line 15). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to follow the teachings of Borrás and choose first mobile station whose signal strength is the best among the communication group by comparing signal strength of every mobile station in the system of Heiskari in order to extend the distance the base station can transmit and increase quality of group communication with the best received signal.

Claims 8, 19, 26 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heiskari et al (US 5901342) in view of Mori (US 6330446)

15. As to claims 8, 19 and 37, Heiskari teaches steps of:

- identifying an intended recipient in the data; and
- when the intended recipient corresponds to a mobile station of the plurality of mobile stations, transmitting the local radio communication from the first mobile station to the intended recipient mobile station. (See col.3; lines 1-10)

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Heiskari fails to disclose step of decoding data in the radio communication. However, Mori teaches the step of decoding data in the radio communication for mobile terminal (fig. 1 and col.2; line 59- col.3; line 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Mori to the system of Heiskari in order to enhance performance of wireless communication.

16. As to claim 26, Heiskari teaches a radio communication method comprising:

cooperating among a plurality of locally positioned mobile stations to

assign one mobile station of the plurality of locally positioned

mobile stations to receive downlink radio transmissions from a

remote base station in a radio communication system (col.1; line 31- col.2; line 48);

at the one mobile station,

receiving a downlink radio communication at the one mobile station (RS)

in accordance with a first radio communication protocol (TMO) of

the radio communication system (fig.2 and col.2; lines 34-39)

searching the downlink radio communication to identify an intended

recipient of the downlink radio communication (col.3; lines 1-10), and

when the intended recipient is another station of the plurality of

locally positioned mobile stations, transmitting information

about the downlink radio communication to the other mobile

station using a low-power local radio communication protocol (col.3; lines 1-10 and col.1; line 31- col.2; line 6).

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Heiskari fails to disclose the step of decoding the radio communication when receiving the radio communication. However, Mori teaches the step of decoding the radio communication right after it is received by a mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Mori to the system of Heiskari in order to enhance performance of wireless radio communication system.

Claims 3, 5-6, 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heiskari et al (US 5901342) view of Kinnunen et al (US 6023626)

17. As to claims 3, 6, 34-36, Hershey fails to disclose among the plurality of mobile stations, sequentially assigning the first mobile station to receive the radio communication. However, Kinnunen teaches method of allocating speech items to mobile unit communicating on direct mode channel. The mobile stations communicating to one of mobile stations are sequentially allocated (col.4;line 66- col.5; line 15). Further, Kinnunen teaches mobile stations can be repeater stations which can receive communication from a base station and transmit it to other station in the group in view of Heiskari. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to sequentially choose the one mobile station among the plurality of mobile stations in Heiskari 'system as the first mobile station in view of Kinnunen in order to make assigning the first mobile station flexible.

18. As to claim 5, Heiskari fails to disclose assigning the first mobile station to receive radio communications during a predetermined time period. However, Kinnunen teaches the mobile stations communicating to one of mobile stations in direct mode in a group are sequentially allocated (col.4; line 66- col.5; line 15) within a predetermined time period (col. 9; line 35-42). Further, Kinnunen teaches mobile stations can be repeater stations which can

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receive communication from a base station and transmit it to other stations in the group in view of Heiskar. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to sequentially choose the one mobile station among the plurality of mobile stations in Heiskari 's system as the first mobile station during a predetermined time period as taught by Kinnunen in order to make assigning the first mobile station flexible during a predetermined time period.

Claim 9 is rejected under 35 U.S.C. 103(a) as being anticipated by Heiskari et al (US 5901342)

19. As to claim 9, Heiskari inherently teaches when the intended recipient does not correspond to a mobile station of the plurality of radio stations, discarding the radio communication (col.3; lines 1-10).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heiskari et al (US 5901342) view of Hershey et al (US 5481539)

20. As to claim 11, Heiskari fails to disclose transmitting radio communications intended for any mobile station of the plurality of mobile stations during a common predefined time period. However, Hershey teaches transmission of radio communication to a mobile station is expired if transmission time is beyond a predefined time period (col. 4; line 35- col.5; line 14). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the teachings of Hershey into the method of Heiskari in order to improve communication traffic.

Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collyer (US 5915208) in view of Heiskari et al (US 5901342) and Mori (US 6330446)

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21. As to claim 14, Collyer teaches a mobile station operable in a radio communication system, the mobile station comprising:

a first radio circuit (fig.2; 124)

a local radio circuit; (fig.2; 122). (See col.3; lines 39-67)

a control circuit (fig. 1, 2; 214) controls the operation of the first radio circuit (124) and a control circuit (fig. 1, 2; 204) controls the operation of the local radio circuit (122). And communication between the controller 214 and the controller 122 facilitates operation of whole the radio communication system.

Collyer fails to disclose a control circuit operable in conjunction with the first radio circuit to decode a radio communication and operable in conjunction with the local radio circuit to transmit a local radio communication in response to the radio communication. However, Heiskari teaches a radio communication system having a controller that receives the radio communication, then transmits a local radio communication in respond to the radio communication (col. 3; lines 1-10). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Heiskari to the radio system of Collyer in order to receive calls and to forward such call signals either from the radio communication system to a direct mode channel or from a direct mode channel to the radio communication system.

Collyer and Heiskari fail to disclose a circuit to decode received radio communication. However, Mori teaches decoder installed in a mobile terminal to decode a radio communication transmitted from a base station. Therefore, it would have been obvious to one of ordinary skill

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in the art at the time the invention was made to provide the teachings of Mori into system of Collyer and Heiskari in order to enhance performance of wireless communication.

22. As to claim 15, Heiskari teaches the control circuit is further operable to identify an intended recipient of the radio communication and transmit the local radio communication to an associated mobile station when the intended recipient is the associated mobile station (col. 3; lines 1-10)

23. As to claim 16, Collyer teaches the first radio circuit comprises:

a receiver operable on a cellular radio communication system; and

a transmitter operable on the cellular radio communication system (fig.1 and col.1; lines 11-19).

24. As to claim 17, Collyer teaches the local radio circuit comprises:

a local receiver operable in a short range radio communication system including at least the associated mobile station; and

a local transmitter operable in the short range radio communication (fig.1 and col. 1; lines 19- 37)

Claims 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collyer (US 5915208) in view of Heiskari et al (US 5901342).

25. As to claim 18, Collyer teaches a portable electronic device comprising:

a first radio circuit (fig.2; 124)

a local radio circuit; (fig.2; 122). (See col.3; lines 39-67)

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a control circuit (fig. 1, 2; 214) controls the operation of the first radio circuit (124) and a control circuit (fig. 1, 2; 204) controls the operation of the local radio circuit (122). And communication between the controller 214 and the controller 122 facilitates operation of whole the radio communication system.

Collyer fails to disclose a control circuit operable in conjunction with the first radio circuit to decode a radio communication and operable in conjunction with the local radio circuit to transmit a local radio communication in response to the radio communication. However, Heiskari teaches a radio communication system having a controller that receives and decodes the radio communication, then transmits a local radio communication in response to the radio communication (col. 3; lines 1-10). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Heiskari to the radio system of Collyer in order to receive calls and to forward such call signals either from the radio communication system to a direct mode channel or from a direct mode channel to the radio communication system.

26. As to claim 20, Heiskari teaches control means for determining an intended recipient of the downlink radio transmission (col. 3; lines 1-10).

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heiskari et al (US 5901342) in view of Mori (US 6330446).

27. As to claim 26, Heiskari teaches a radio communication method comprising:
cooperating among a plurality of locally positioned mobile stations to

assign one mobile station of the plurality of locally positioned

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mobile stations to receive downlink radio transmissions from a remote base station in a radio communication system (col.1; line 31- col.2; line 48); at the one mobile station, receiving a downlink radio communication at the one mobile station (RS) in accordance with a first radio communication protocol (TMO) of the radio communication system (fig.2 and col.2; lines 34-39) searching the downlink radio communication to identify an intended recipient of the downlink radio communication (col.3; lines 1-10), and when the intended recipient is another station of the plurality of locally positioned mobile stations, transmitting information about the downlink radio communication to the other mobile station using a low-power local radio communication protocol (col.3; lines 1-10 and col.1; line 31- col.2; line 6).

Heiskari fails to disclose the step of decoding the radio communication when receiving the radio communication. However, Mori teaches the step of decoding the radio communication right after it is received by a mobile station. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Mori to the system of Heiskari in order to enhance performance of wireless radio communication system.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heiskari et al (US 5901342) in view of Mori (US 6330446).as applied to claim 26 above, and further in view of Brown et al (US 6366622).

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28. As to claim 27, Mori and Heiskari fail to disclose transmitting information comprises transmitting data in accordance with the Bluetooth radio communication protocol. However, Brown teaches transmitting information comprises transmitting data in accordance with the Bluetooth radio communication protocol (col.4; line 57-col.5; line 5). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Brown to the system of Heiskari and Mori in order to offer solution that yields rugged wireless connectivity.

Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heiskari et al (US 5901342) in view of Brown et al (US 6366622).

29. As to claim 39, Heiskari fail to disclose transmitting information comprises transmitting data in accordance with the Bluetooth radio communication protocol. However, Brown teaches transmitting information comprises transmitting data in accordance with the Bluetooth radio communication protocol (col.4; line 57-col.5; line 5). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Brown to the system of Heiskari in order to offer solution that yields rugged wireless connectivity.

Conclusion

30. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thang Q Le whose telephone number is (703)305-4367. The examiner can normally be reached on Monday-Friday 8AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on (703)308-5318. The fax phone numbers for the

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organization where this application or proceeding is assigned are (703)872-9314 for regular communications and (703)308-5403 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

THANG LE
August 26, 2002


WILLIAM TROST
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600